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Article

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MARKETING | RESEARCH ARTICLE

An explanatory framework of palm oil panic buying behavior in Indonesia: Do perceived scarcity and perceived price being enablers?

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Abstract: This study aims to analyze the main effect of perceived scarcity and perceived price on the panic buying behavior of palm oil in Indonesia. Perceived control and consumer anger also investigate as consequences of perceived scarcity. This study uses explanatory research quantitative analysis techniques with hypothesis testing. The sampling technique of non-probability sampling is done through the convenience sampling method. The sample in this study was 289 consumers of palm oil in West Sumatra, Indonesia, which were collected by distributing online questionnaires via the link of google form. SmartPLS 3.0 tests the effect between the variables analyzed on the first-order level construct. The results show that perceived scarcity does not show a significant direct effect on panic buying behavior, but it does affect perceived control and consumer anger, which in

Meuthia

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PUBLIC INTEREST STATEMENT

Since the beginning of 2022, Indonesian society had been unsettled by price upsurge, scarcity, and trouble accessing the palm oil as the most favorable commodities midst economic recovery attempts after the COVID-19 pandemic. Bulk palm oil, which used to be abundantly sold in traditional markets and stores providing palm oil under a variety of brands and packages, was no longer available. The purpose of the research is to investigate the relationship between perceived scarcity, perceived control, consumer anger, perceived price, and panic buying behavior within the context of consumer perception in West Sumatera, Indonesia. The result of the study recommends all stakeholders should corporate to issue appropriate policies and regulations by considering aspects of sustainability, distributional justice, and consumer interests in order to effectively and fairly address scarcity for society, businesses, and producers of palm oil.

turn affect panic buying behavior. Panic buying behavior is also influenced by perceived price. Briefly, the results of this study have practical and conceptual implications which provide valuable insight for further research.

Subjects: Marketing Research; Consumer Behaviour

Keywords: Panic Buying Behavior; Perceived Scarcity; Perceived Price; Perceived Control; Consumer Anger; Smartpls 3.0

1. Introduction

Palm oil is one of the most popular commodities for cooking in Indonesia after rice, sugar, and eggs, which are three primary daily needs. According to data from Statistics Indonesia (BPS), on 29 October 2021, the Indonesian population mostly prefers palm oil when cooking. The average palm oil consumption at a household level in Indonesia in 2015–2020 rose by 2.32%/year. Despite the rise, palm oil production can still meet the consumption needed (Rahayu, 2022).

And yet, as early as 2022, Indonesian people suffer from palm oil scarcity. Bulk palm oil, which used to be abundant in traditional markets, has suddenly disappeared. Similarly, stores and mini-markets, which commonly provided society with many different brands and packages of palm oil, now offer empty shelves. People may find a limited amount of packaged palm oil in supermarkets, but it is often sold out immediately. The scarcity implies the advent of panic buying behaviors. Panic buying breaks out due to inconveniences underlying individual purchase intention to purchase goods more than usual (Lins et al., 2022). It is perceived as a way to cope with anxiety about uncertainties and survive a crisis or other disturbing events.

Palm oil scarcity in Indonesia and high-cost primary needs amidst the socioeconomic crisis due to the COVID-19 pandemic demand the government to take extreme actions. Ever-increased palm oil prices indicate that the government's policy concerning the stipulation of the Maximum Retail Price (MRP) of IDR14,000.00 for palm oil is ineffective. Surprisingly, after the Minister of Trade, Muhammad Lutfi, revoked the Ministry of Trade Regulation Number 6/2022 concerning the Maximum Retail Price (MRP) of palm oil and issued a substitute, i.e., the Ministry of Trade Regulation Number 11/2022 concerning the policy of domestic fulfillment through market mechanisms through subsidized bulk palm oil, non-subsidized packaged palm oil regains its popularity in the market, while the subsidized ones grow scarce.

This research provides new insights into the factors that drive panic buying behavior in response to palm oil scarcity and economic recovery during the COVID-19 pandemic. Uniquely, the scarcity, which brings about panic buying, comes about in Indonesia, the world's top-ranked Crude Palm Oil (CPO) producer. Meanwhile, CPO production in Indonesia was reportedly ever-increasing, from 38.16 million tons in 2017 to 51.3 million tons in 2021 (DataIndonesia, 2022). The phenomenon is prevalent across Indonesia, including in West Sumatra.

The research object is the West Sumatra society, considering that the area experiences the highest price change in all of Indonesia's areas (Databoks, 2022). Palm oil in West Sumatra was sold at IDR25,800.00/kg on Friday, NaN Invalid Date NaN. As suggested by daily data on primary goods commodities by the Center for Information of National Strategic Food Price, palm oil prices in West Sumatra began crawling up by 3.41% within a week. However, as conveyed by data in the last year, palm oil prices in modern markets in West Sumatra declined after reaching IDR27,400/kg. The drastic and high change in palm oil prices in West Sumatra breeds panic buying behaviors in society. In West Sumatra, as a consequence of panic buying, some merchants cannot access adequate bulk palm oil supplies, leading to more severe scarcity. Meanwhile, once there are palm oil supplies, society massively purchases them for stocks. The scarcity factor is one of the causes of panic buying, in which society gathers as many stocks as possible to avoid paucity.

Some research has examined factors allegedly impacting panic buying behaviors by consumers, i.e., perceived scarcity (e.g., Arafat et al., 2020; Cannon et al., 2019; Chua et al., 2021; Ngunjiri, 2020; Omar et al., 2021; Singh & Rakshit, 2020; Sterman & Dogan, 2015; Yoon et al., 2018; Zheng et al., 2020), perceived price (Chua et al., 2021; Loxton et al., 2020; Noone & Lin, 2020; Wang et al., 2020; Zhong & Moon, 2020), perceived control (Barnes et al., 2021; Frazier et al., 2011; Lehberger et al., 2021; Li et al., 2021; Zheng et al., 2021), and consumer anger (Gazali, 2020; Roy & Chakraborty, 2021; Yuen et al., 2020).

A preliminary study by Omar et al. (2021) examines the determinants of panic buying behaviors during the COVID-19 pandemic. Several psychological theories, e.g., behavioral inhibition system theory, reactance theory, and expectancy theory, were developed on the research model. Results exhibited how psychological factors, covering uncertainty and perceived scarcity, are positively correlated with anxiety but indicate no correlation with consumer panic buying behaviors during the COVID-19 pandemic. This study, however, does not consider anxiety as an antecedent of panic buying behaviors. Instead, it emphasizes consumer anger factors as they are considered more relevant to the product scarcity context, especially palm oil, which surprisingly afflicts Indonesia as one of the top palm oil producers worldwide.

The use of the Health Belief Model, encompassing perceived susceptibility and perceived severity components as the bases of the concerns about inadequate daily need supplies during lockdown due to the COVID-19 pandemic, moderated by a lack of control, was investigated by Li et al. (2021). Within the context of panic buying behaviors, the Health Belief Model construct, constituted by five components (perceived susceptibility, perceived severity, cues to action, outcome expectation, and self-efficacy) through Anticipated Regret as the grand theory, was related to consumer-motivating objects which helped them avoid detrimental or health-risk-promoting behaviors, allowing them to anticipate regret at out-of-stock products. Health Belief Model was found to positively and significantly affect perceived scarcity. Nevertheless, this finding is considered irrelevant to the pandemic context highlighted in this research. The pandemic has elevated individuals' tendency to pile more daily need supplies for anticipating the lockdown period, which is their efforts to maintain health and prevent the COVID-19 infection. Nonetheless, this argument does not apply to palm oil products. Health belief factors will encourage individuals not to hoard a larger amount of palm oil. Palm oil comes with unhealthy ingredients triggering a range of diseases if persistently consumed in a large amounts.

Noone and Lin (2020) showed that certain characteristics of perceived scarcity, such as an increase in the perception of competition among consumers and uncertainty about the price of available stock, can lead consumers to believe that panic buying can reduce their risk of experiencing a negative outcome. Perceived scarcity can result in an increase in the perception of competition among consumers and uncertainty about the price of available stock. This can lead to an increase in anticipated regret due to the heightened sense of competition and price uncertainty. The reason above reinforces the findings of Chua et al. (2021) that there is a positive relationship between perceived scarcity and anticipated regret. The affective response, i.e., anxiety, toward product price volatility impacts panic buying behaviors. Anxiety related to price volatility refers to individual anxiety about significant price fluctuation or price uncertainty possible during the pandemic. Consumers even nurture a stronger fear of product paucity. It makes them apt to buy a higher number of products to decrease their negative emotions and give them a secure feeling.

Perceived price, in this research, rather than price fluctuation or increases, is more based on the assumed price policy issued by the government. Hence, the factor of perceived prices which are reasonable, fair, and affordable is also our consideration. The research investigates the perceived price after the issuance of several government policies concerning the Maximum Retail Price through the Ministry of Trade in response to the scarcity phenomenon. Due to policy changes, non-subsidized palm oil is being sold at a high price, resulting in a scarcity of subsidized palm oil. In addition, the research observes perceived control and emotional factors, e.g., anger, as a

consequence of dealing with palm oil scarcity in Indonesia. As regard panic buying, consumers excessively shop as they are anxious to maintain price stability and prevent further concerns about supply scarcity as a result of a continuous critical condition (Omar et al., 2021).

To address the research gap, this research's aim is to probe the theoretical contribution of the cognition-affect coping model of coping behavior as underpinning theory to understand the enablers of panic buying behavior, including perceived scarcity, perceived control, consumer anger, and perceived price. According to the palm oil as a primary resources' context, this paper suggests that factors from the perceived scarcity, affect how people feel when it is difficult to find palm oil to buy and control their behaviour to this event. This perception then influences their panic buying behaviour. Additionally, panic buying behaviour is directly influenced by perceived price. The theoretical model, which consists of five constructs, is estimated using Structural Equation Modeling to improve accuracy due to the presence of unobserved latent constructs.

The rest of this paper is structured as follows: The second section provides a summary of the theories used to develop the model that explains panic buying behavior. Section 3 provides the data collection methodology is described. This is followed by an analysis of the survey results. Next, conclusions and implications are drawn from the research findings. Finally, limitations and suggestions for future research are offered.

2. Literature review and hypotheses development

2.1. Cognition-affect coping model of coping behavior

According to Yuen et al. (2020), worries about unknown aspects can allegedly fuel consumer coping behaviors. For some individuals, panic buying is a way to regain control over a crisis (Yuen et al., 2020). Control over an event or a crisis contributes to consumer stress levels. Meanwhile, an uncontrolled crisis may generate functional disruptions (Sneath et al., 2009). Accordingly, a critical or disastrous situation may lead to goods hoarding. When individuals perceive a loss of wealth or social status, they will likely endeavor to manifest "normality" to address the problematic situation (Sneath et al., 2009). Commonly, individuals nurture a natural desire for situation controlling they deem as a way to survive difficulties. Control refers to the individual ability to inflect some outcomes in their environment (Yuen et al., 2020). Oftentimes, individuals perceive it is always necessary for outcome controlling, the desire which allows them to master a certain task or field (Chen et al., 2020). It gives off panic buying, where individuals hoard or purchase products in massive numbers, making them consider themselves smarter and more secure than others (Chen et al., 2020).

During a life-threatening situation, such as the COVID-19 pandemic or any other leading to supply scarcity of products claimed as basic needs, consumers' perceived control over the environment declines, resulting in more concerns and a whim of retaking control over, the theory of which is called a compensation control theory (Yuen et al., 2020). Chen et al. (2017), postulated that consumers comply with the compensation consumption theory to meet their basic needs associated with motivational control. They compensate and solve their control loss using product purchasing strategies. As such, panic buying can be perceived as consumers' compensating behavior, whereby consumers continuously make a product purchase transaction to compensate for deficits they suffer from due to perceived needs and desires and to satisfy them indirectly (Yuen et al., 2020). In this case, deficits reflect a control loss over scarcity, inducing consumers to compensate them through problem-solving, namely panic buying. Besides, Yap and Chen (2020) stated that those living in a densely-populated areas will likely purchase utilitarian products when perceiving stress and panic due to a certain critical situation like a pandemic. Utilitarian products are items that are essential for achieving a specific goal (Basso et al., 2019). Generally, the cognition-affect coping model of coping behavior by Yuen et al. (2020) served as the underpinning theory for understanding the relationships between the variables in this study.

2.2. The effect of perceived scarcity on perceived control and consumer anger

Perceived scarcity refers to individual expectations that a product may become unaffordable after a certain incident (Sheu & Kuo, 2020). Scarcity, as quoted from Gupta and Gentry (2016), can inflect consumer perceptions of a product by enhancing consumer interest and desire. People are inclined to be interested in scarce products as scarce products can create a perception that the products are special, exclusive, and valuable, promoting the desire for buying them.

Perceived Control (PC) constitutes an individual's belief in a specific determined behavior which can predispose others to act accordingly (Wallston et al., 1987). Strecher et al. (1986) highlight an empirical literature study disclosing that perceived control of individuals with affection beliefs motivates them to conduct or not conduct a certain act (Wallston et al., 1987). In so doing, the psychological states of individuals play a crucial role in deciding appropriate values and expectations in a particular situation (Rotter, 1954).

Full mediation in planning activity will augment individual self-control on time, work, and work complacency (Claessens et al., 2004). That is, individuals having made a plan of activity or cognitive process in time controlling will result positively. The motivation of "Avoiding shortages" instead of "Resisting food price hikes", have a more significant impact on consumer decision about food hoarding (Wang et al., 2020). It demonstrates how consumers prefer nurturing supply availability to sustaining price stability, leading to supply scarcity. Aligned with the previous research and the above description, the first hypothesis is:

H1a: Perceived scarcity significantly influences on perceived control

As proposed in the reactance theory, product scarcity will cause a threat psychologically provoking individuals to buy products in a higher number compared to that before the scarcity (Ditto & Jemmott, 1989). The psychological reactance reflects an increase in purchasing scarce-claimed products (Pan et al., 2020). The rational choice theory posits that individuals make choices to maximize success (Broda et al., 2018). Rational consumers evaluate their whims and integrate the evaluation-generated information into a decision (Loewenstein et al., 2001). However, a theoretical perspective delineates that individuals' happening irrational consumption trends may entail high risk, e.g., a crisis (Slovic, 2004).

An emotional reaction to an event stresses individuals and drives them to make an irrational cognitive evaluation, as remarked by the "risk-as-feeling" theory stating that excessive goods purchase by that time is considered rational (Loxton et al., 2020).

The incorporation of subjective standards and emotions is consistent with Gross (1998) assertion that emotions are a reaction that a person may control in order to accomplish certain goals. For instance, someone may have instrumental goals, such as controlling their anger or fear in order to manage a certain circumstance more effectively, or they may have hedonistic goals, such as increasing their delight in order to accomplish their objectives. Therefore, the intention for panic buying is dependent on the feelings that Indonesians perceive, which is consistent with Patiro et al. (2022) findings that an individual's intentions are driven by their angers. Building on the explanation, the second hypothesis is:

H1b: Perceived scarcity significantly influences on consumer anger

2.3. The effect of perceived control, perceived scarcity, and consumer anger on panic buying behaviors

Individuals have the need to determine their fates, experiences, attitudes, and freedom (Ryan & Deci, 2000). In terms of fate determination, they believe that they are absolute controllers. Their perceived high absolute control makes them feel competent and motivated. Lee et al. (2018) research how individuals respond to scarcity when having high and low control over an incident. Scarcity effectively compensates for perceived control loss as it symbolizes distinctiveness, stimulates urgency, and offers an opportunity to access resources.

Panic buying occurs because consumers are anxious about product supply scarcity due to natural disasters, bad weather, changes in government policies (Tsao et al., 2019), bad mood or psychological factors (Wang & Na, 2020), and the COVID-19 pandemic (Guynn et al., 2020; Hogan, 2020; Kassas & Nayga, 2021; Nicola et al., 2020; Sim et al., 2020; Taylor, 2021). Hence, consumers exhibit panic buying behaviors in order to be able to cater to their needs and seek to access limited products as a result of natural disasters, bad weather, and changes in government policies (Tsao et al., 2019). Commensurate with the prior research and the above explanation, the third hypothesis is:

H2a: Perceived control significantly influences on panic buying behavior

The scarcity suffered is affected by a loss of control over the surrounding environment (Bonneux & Van Damme, 2006), and supply chain disruption (Shou et al., 2013). Panic buying is prevalent when consumers are purchasing products in high numbers due to some factors, e.g., disasters, the assumption of price upsurge, and the probability of product scarcity (Singh & Rakshit, 2020). In so doing, they do panic buying to reduce the risk of product scarcity (Shou et al., 2013).

Panic buying behaviors indicate consumer attitudes wherein they purchase a high number or a range of products to anticipate disasters, scarcity, and price surges (Yoon et al., 2018; Yuen et al., 2020). According to Yuen et al. (2020), there are four main causes of panic buying: (1) perceived threats of product scarcity, (2) anxiety about uncertainty, (3) coping behaviors, and (4) social psychology. Scarcity has a positive impact on panic buying due to consumers' limited goods availability perception, resulting in them considering potential risks and deciding to purchase products, while the availability of the products is still at hand (Chua et al., 2021). It prompts consumers to do panic buying. In line with previous research and the explanation above, the fourth hypothesis is as follows.

H2b: Perceived scarcity significantly influences on panic buying behavior

Panic, according to Ngunjiri (2020), is a human's subjective, emotional state which significantly influences their behaviors. Panic buying constitutes consumers' shopping behaviors fueled by their fear of future goods availability. Related to panic buying, consumers are still looking for the functional use of a shopping process, but they shop for goods in higher quantities or exceeding their needs. These behaviors are indicated by sudden and uncontrollable behaviors carried out by many people behaving by anxiety (Shadiqi et al., 2021). It indicates that anxiety and concern about the availability of products in the future induce people to engage in panic purchasing, which is the practice of continuing to purchase for functional advantages while going over their budget or indulging in desires that are beyond what they can reasonably afford. These actions are marked by abrupt, erratic, crowded, exaggerated, and nervous conduct.

Psychological problems with the ensuing interpersonal factors are what lead to panic purchasing in palm oil (Arafat et al., 2020). A feeling of tension and stress, a sensation of

approaching danger, and an activation of the sympathetic nervous system are all characteristics of anxiety. Other panic buyers are concerned that if supplies start to become scarce, prices would undoubtedly increase. According to Supriatna (2022), customers purchase a lot of items because of concern that they will not be able to pay the price being offered if the cost of goods rises at the incorrect moment. Moreover, the formulation of the Social Cognitive Theory is achieved by blending emotions and subjective norms, aiming to forecast the intention behind panic-buying behavior during the COVID-19 pandemic outbreak in Indonesia (Patiro et al., 2022).

The assumption underlying panic buying is that individual anger generally drives them to act irrationally, uncoordinated, and uncooperative during an emergency, which fuels panic. Bougie et al. (2003) suggested that anger relates to an action reflecting consumer disappointment at a company's failure to present a product or service. Anger refers to "an emotion caused by" the perception of an unwanted situation or outcome resulting from others (Antonetti, 2016, 2020). Previous researchers observed the antecedents of consumer anger and its consequences. Funches (2011) conveys the causes of consumer anger, i.e., broken promises, unfair treatment, and declared hostility. Patiro et al. (2022) use the development of the social cognitive theory to show the role of emotion in predicting panic buying behaviors. Based on the standpoints inferred from previous studies, the fifth hypothesis is proposed:

H2c: Consumer anger significantly influences on panic buying behavior

2.4. The effect of perceived price on panic buying behaviors

Price constitutes an exchange element allowing two parties, a buyer and a seller, to make a transaction (Auf et al., 2018). Consumers always claim price as the key element to making a purchase decision. That is, price is an indicator affecting the exchange relationship of customers. Consumers build a certain emotional form when comparing the price of a product with that of another product, generating either acceptance or decline as the result of such comparison (Nagle et al., 2016). Here, consumers need the information to give a meaning to the product price. Consumers' behaviors impact how they evaluate and analyze a certain product price (Rekettye & Liu, 2018).

In line with the study of Purbawa et al. (2023), scarcity was followed by escalating prices that were well over the acceptable price range of customers. As a result, consumers may perceive the unjust price of packaged cooking oil during shortages because they continue to acquire it at a higher price than their acceptable price. Product and service prices are determined by the balance between offers and demands evaluated based on consumer willingness to pay (Al-Salamin & Al-Hassan, 2016). A high-priced product offered should conform to the benefits consumers get (Nagle et al., 2016). When evaluating the quality of a product or service, consumers will have a higher expectation of products or services with a higher price, as the higher the price, the higher the quality (Zhong & Moon, 2020). Meanwhile, significant swings in prices often set off consumers to panic buying when the price is still set low. Panicked consumers during a crisis will likely make purchases based on price over quality priorities (Basev, 2014). Furthermore, consumers' affective responses to concerns about the price volatility of a product inflect panic buying behaviors (Li et al., 2021). Building on the above explanation, the sixth hypothesis is:

H3: Perceived price significantly influences on panic buying behavior

The framework for this study is derived from a previous literature review. A conceptual model of the hypothesized relationships investigated in this work is shown in Figure Figure 1.

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3. Research methods

This research applies the explanatory research through quantitative approach with hypothesis and descriptive testing. The sampling technique used in this study was non-probability sampling, specifically purposive sampling. The criteria for inclusion were: (1) being an Indonesian citizen over the age of 17, (2) residing in West Sumatera, Indonesia, and (3) having accessed information about the scarcity of palm oil through electronic media. According to Hair et al. (2017), the determination of a representative sample size depends on the number of indicators multiplied 5 to 10. Since this study has 20 indicators, at least 100 respondents are needed for the sample size. To prevent data errors that would make further processing impossible, the research sample comprised 289 respondents. The data collection commenced through online questionnaires on the second quarter after the peak of cooking oil scarcity occurred in Indonesia at the beginning of 2022 (from 4 July 2022 to 9 August).

Items measuring the various variables were adapted from the previous work of the literature. Perceived scarcity was adopted and modified from measurements developed by Chua et al. (2021). Perceived price was adopted and modified from measurements developed by Zhong and Moon (2020). The variable measurement of perceived control and consumer anger were adopted and modified from Frazier et al. (2011) and Antonetti and Manika (2021) respectively. These two variables were not tested as mediation in this study. The researcher is focusing on panic buying behavior as the dependent variable, while perceived price and perceived scarcity are the two independent variables. Panic buying behavior measurements were adopted and modified from Ardyan et al. (2021). Appendix A contains the details of the items used to measure each construct. In this research model, reflective indicators are used for all latent variables, both exogenous and endogenous. All constructs organized a 5-point Likert-type scale that ranged from "1 – strongly disagree" to "5 – strongly agree".

In general, this research was conducted in two analysis steps: descriptive study and hypothesis testing. Descriptive study was used to identify the demographic characteristics of respondents. Then, before hypothesis testing, the measurement model and structural model were analyzed using the variance-based SEM of Partial Least Square (PLS-SEM) technique through smartPLS 3.0 as a tool. The main reason for using PLS-SEM was due to the research model, which was complex and multidimensional in nature and comprised multiple indicators (Hair et al., 2017). Also, referring to Hair et al. (2021), this method could handle violations of normality and required no strict assumptions about input data distribution. It used a confirmatory approach to investigate the structural theory of a problem and could handle missing data. PLS-SEM combined regression and factor

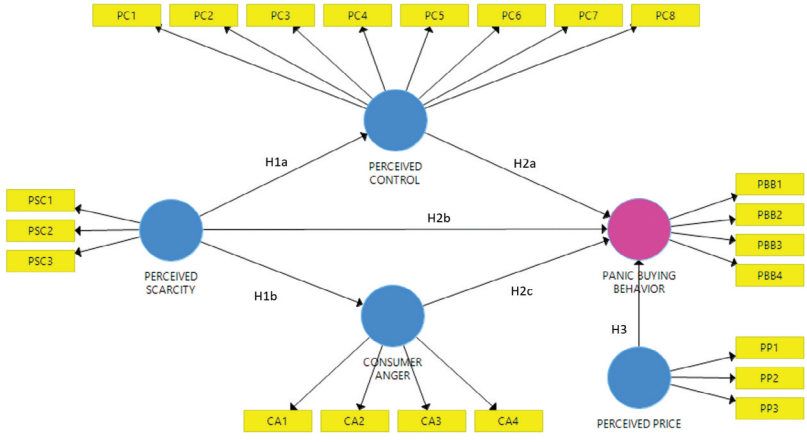


Figure 1. Conceptual model.

analysis in its measurement models, making it useful for determining causal relationships between components using various evaluation items. In this study, PLS-SEM was used to thoroughly examine the causal relationships between perceived scarcity, perceived control, consumer anger, perceived price, and panic buying behaviour.

Before testing the structural model using PLS-SEM, it was important to first evaluate the measurement model through instrument testing. According to Henseler et al. (2016), this study evaluated the construct validity by assessing convergent validity and discriminant validity. In SmartPLS, construct validity could be assessed using several methods (Hair et al., 2017). Several researchers, such as Chin (2009); Roldán and Sánchez-Franco (2012); and Tenenhaus et al. (2005) brought to light that measurement model testing was an initial step to assess PLS-SEM outputs.

PLS-SEM estimation testing enabled researchers to evaluate construct reliability and validity. Measurement model evaluation in this research referred to Hair et al. (2021), who encapsulated some steps of testing reflective construct measurement validity, e.g., indicator reliability (outer "factor" loadings), internal concistency (Cronbach's alpha, composite reliability, reliability coefficient), convergent validity (Average Variance Extracted), and discriminant validity (Fornell-Larcker criterion & HTMT). The process and evaluation in this stage was named Confirmatory Composite Analysis (CCA) by Hair et al. (2020).

Moreover, structural model testing was also necessary to test all hypotheses proposed so research problems could be finally answered. The PLS structural model was evaluated using R-squared for independent construct, path coefficient values or t-values of the respective paths for a significance test between constructs in the structural model. Other parameters also being evaluated through structural model testing, such as *effect Size* (*f square*) and *prediction relevance* (*Q square*).

4. Results and discussion

The remaining of the paper is organized as follows: the next section explains the result of respondent characteristics as well as measurement model testing. Subsequently, we analyse the hypotheses testing through bootstrapping process. Finally, the discussion of these results will be explained.

4.1. Respondent Characteristics

All participants were consumers of cooking oil in West Sumatera, Indonesia. The online questionnaire was administered through google form link. The following table shows the description of respondents based on gender, age, educational background, marital status, income, occupation, the last time to access information about the scarcity of palm oil, frequency to consume palm oil, the last time to consume palm oil, consumption pattern that most likely, and government policy regarding the price determination.

According to Table 1, the majority of respondents are female, as many as 225 people (77.9%) with an age range of 17–30 years (61.2%) and the last education has been graduated from the elementary/junior high school/senior high school level (48.1%). As many as 27.68% of respondents are students, the majority of respondents are still unmarried (53.3%), with low monthly income, which is less than Rp. 2,500,000 (58.8%). Regarding the last time to access information about the scarcity of palm oil in the media, the most accessed was less than a month ago (41.87%).

The majority of respondents, 218 people or 72.10% are really liked the type of fried food processing with a very frequent consumption frequency, namely every day (166 people or 57.44%), and as many as 87.89% of respondents consumed foods containing palm oil in Indonesia. the day of filling out the questionnaire. The data above shows that consumers of palm oil in Indonesia, especially in the Province of West Sumatra and several other provinces are dominated by women of productive age, both still as students and those who have worked as

private employees, entrepreneurs, and housewives with a high level of need, due to it always consumed every day. This certainly raises concerns due to the high level of community dependence in processing food, which almost always likes foods containing palm oil.

In addition, from several policies issued by the government in response to the scarcity of palm oil in Indonesia, such as the policy of setting the Highest Retail Price (HET) and fixing subsidized and non-subsidized palm oil prices, the majority of respondents respectively, namely 157 people or 54, 33% and 151 people or 52.25% disagree with these two policies. The high price of palm oil in Indonesia at the end of 2021 which follows international palm oil prices has prompted the government since the beginning of 2022 to issue a policy of setting the Highest Retail Price (HET). The Indonesian government as of 1 February 2022 enacted Minister of Trade Regulation No. 6 of 2022 regarding the Highest Retail Price (HET) for palm cooking oil, which is Rp 11,500 per liter for bulk palm oil, Rp 13,500 per liter for simple packaging and Rp 14,000 per liter for premium packaging.

4.2. Description of research variables

Table 2 exhibits the description of the variable used in this research. The perceived scarcity variable indicated that indicator PSC2 attained the highest mean score, stating consumers' perceived concerns about the limited availability of palm oil the brand of which they desired to buy during palm oil scarcity. Branded palm oil took the form of packaged palm oil. The policy of the Maximum Retail Price determined by the government through Ministry of Trade Regulation Number 6/2022 made a standard packaged palm oil sold at IDR13,500.00/L and a premium one sold at IDR14,000.00/L. The prices were congruence with the costs of goods sold, leading to palm oil scarcity.

Individuals' perceived control had the highest mean score at indicator PC7, showing respondents' ability to self-control in response to palm oil scarcity in Indonesia. However, concerning the palm oil price in the market, most respondents argued that, albeit regulated through Ministry of Trade Regulation setting the Maximum Retail Price, the price was considered irrational (PP1), unfair (PP2), and affordably to society (PP3). In other words, the scarcity created a high palm oil price in the market.

Nevertheless, it did not propel panic buying behaviors among the research respondents because consumers (PBB1-PBB4) were domiciled in the area or province with no intense exposure to negative news of palm oil scarcity as what took place in big cities or the capital city. Additionally, the majority of the research respondents were still students unmarried yet. The status implied their low engagement in making a decision of palm oil purchase for household consumption. Negative emotions responding to palm oil scarcity did not spark respondent anger, and that being so, almost all indicators of the consumer anger variable (CA1-CA4) earned mean scores as low as that of all panic buying behavior indicators. It was consistent with the high score of individual self-control in response to the advent of scarcity issues in society.

4.3. Instrument testing (construct validity and reliability)

This study used validity and reliability testing to identify the proper instrument for further analysis. The outer model testing consisted of indicators reliability, internal consistency, convergent validity, and discriminant validity. The first step to assess the reflective measurement model engaged outer loading testing. The rule of thumb required by Hair et al. (2021) was ≥ 0.70. Lower outer loadings were often found in social sciences, particularly when the used scale was not yet established. Nonetheless, eliminating indicators with outer loading of 0.40–0.70 should be executed carefully because those indicators sometimes had to exist due to their contribution to content validity (Hair & Sarstedt, 2021). Meanwhile, indicators with very low outer loading (≤0.40) should be removed from the construct (Hair et al., 2017).

Table 1. Respondent characteristics

CRITERIA	DESCRIPTION	FREQ	%
GENDER	Male	64	22,1
	Female	**225**	**77,9**
AGE	17–20 years	25	8,7
	21–30 years	**177**	**61,2**
	31–40 years	52	18
	41–50 years	19	6,6
	More than 50 years	16	5,5
EDUCATIONAL BACKGROUND	Not completed in Elementary School	3	1
	Graduated from Elementary School/ Junior High School/ Senior High School	**139**	**48,1**
	Graduated from Diploma Program	28	9,7
	Graduated from Bachelor's Degree	99	34,3
	Graduated from Magister Program	18	6,2
	Graduated from Doctoral Program	2	0,7
MARITAL STATUS	**Unmarried**	**154**	**53,3**
	Married	131	45,3
	Others	4	1,4
INCOME PER MONTH	**Less than Rp 2.500.000**	**170**	**58,8**
	Rp 2.500.001 - Rp 5.000.000	67	23,2
	Rp 5.000.001 - Rp 7.500.000	18	6,2
	Rp 7.500.001 - Rp 10.000.000	22	7,6
	More than Rp 10.000.000	12	4,2
OCCUPATION	Fresh-graduate/Not yet working	9	3,11%
	Freelancer	2	0,69%
	Lecturer/Teacher	3	1,04%
	Photographer	1	0,35%
	Honorer	8	2,77%
	Housewife	30	10,38%
	Private Employee	63	21,80%
	State-Owned Enterprise Employee	3	1,04%
	Civil Servant Employee	32	11,07%
	Student/College Student	**80**	**27,68%**
	SME's assisstant	1	0,35%
	Retired	1	0,35%
	Farmer	3	1,04%
	Entrepreneur	53	18,34%

(*Continued*)

Table 1. (*Continued*)

CRITERIA	DESCRIPTION	FREQ	%
THE LAST TIME TO ACCESS INFORMATION ABOUT THE SCARCITY OF PALM OIL	Today	25	8,65%
	Less than a week ago	57	19,72%
	Less than a month ago	**121**	**41,87%**
	Less than three months ago	59	20,42%
	More than three months ago	27	9,34%
FREQUENCY TO CONSUME PALM OIL	Seldom (1–2 times per week)	10	3,46%
	Sometimes (3–4 times per week)	34	11,76%
	Often (more than 4 times per week)	79	27,34%
	Almost often (every days)	**166**	**57,44%**
THE LAST TIME TO CONSUME PALM OIL	**Today**	**254**	**87,89%**
	Less than a week ago	32	11,07%
	Less than a month ago	2	0,69%
	Less than three months ago	1	0,35%
CONSUMPTION PATTERN THAT MOST LIKELY	Baked	20	6,92%
	Fried	**218**	**75,43%**
	Steamed	3	1,04%
	Boiled	9	3,11%
	Sauteed	39	13,49%
GOVERNMENT POLICY REGARDING TO THE DETERMINATION OF THE HIGHEST RETAIL PRICE OF PALM OIL	Agree	111	38,41%
	Disagree	**157**	**54,33%**
	Do not know	21	7,27%
GOVERNMENT POLICY REGARDING TO THE DETERMINATION OF THE PRICE OF SUBSIDIZED PALM OIL	Agree	126	43,60%
	Disagree	**151**	**52,25%**
	Do not know	12	4,15%

Source: Data processed by SPSS (2022)

The next criterion to evaluate the reflective measurement model was determining convergent validity at a construct level. All the Average Variance Extracted (AVE) values were higher than 0.5 (Hair et al., 2017), indicating the presence of convergent validity. An indicator was considered valid if it had an AVE value above 0.5 with its intended construct. The following Table 3 shows the results comparison of indicators reliability and convergent validity testing before and after invalid indicators were deleted.

Table 3 above contains the value of AVE and outer loading after twice re-estimation (invalid indicators are removed). The AVE value of perceived control is 0,312. As such, the constructs utilized in this evaluation do not meet the threshold of composite reliability criteria (>0,50). According to Hair et al. (2017), the researcher re-evaluate the measurement model. This could involve reassessing the indicators used to measure the constructs and removing any problematic indicators to improve the convergent validity of the measures. All of the irrelevant items (PC2, PC4, PC5, and PC6) have to be deleted first from the initial model due to these item loadings below the

Table 2. Description of research variable

INDICATORS	STATEMENTS	MEAN
Perceived Scarcity		
PSC1	The products that I feel the want to buy will be very limited during the palm oil scarcity	3,57
PSC2	The brand availability for a product will be very limited during the palm oil scarcity	3,65
PSC3	The sizes of a product will be very limited during the palm oil scarcity	3,61
Perceived Control		
PC1	There isn't much I can do to help myself feel better about the event*	2,84
PC2	How I deal with this event now is under my control	3,27
PC3	I don't have much control over my emotional reactions to the event*	3,47
PC4	When I am upset about the event, I can find a way to feel better	3,40
PC5	I have control over my day-to-day reactions to this event	3,57
PC6	There isn't much I can do to keep the event from affecting me*	2,76
PC7	I have control over how I think about the event	3,63
PC8	My reaction to the event is not under my control*	3,48
Perceived Price		
PP1	The price of the palm oil is reasonable	2,51
PP2	The price of the palm oil is fair	2,22
PP3	The price of the the palm oil is affordable	2,42
Panic Buying Behavior		
PBB1	I bought more palm oil than usual because of the fear of running out of stocks	2,44
PBB2	I buy palm oil more than usual because I feel anxious about running out of goods	2,41
PBB3	I buy more palm oil than usual because I am panicked out of goods	2,39
PBB4	I buy more palm oil than usual for me to store	2,37
Consumer Anger		
CA1	I feel mad when it is difficult to find palm oil to buy	2,68
CA2	I feel angry when it is difficult to find palm oil to buy	2,89
CA3	I feel frustrated when it is difficult to find palm oil to buy	2,69
CA4	I feel irritated when it is difficult to find palm oil to buy	2,87

Note: * = reverse coded

Source: Data processed by SPSS (2022)

Table 3. Indicator reliability and *convergent validity*

	INITIAL OUTER LOADING	INITIAL AVE	OUTER LOADING (FINAL REESTIMATION)	AVE (FINAL REESTIMATION)
CA1	0,910	0,848	0,910	0,848
CA2	0,943		0,943	
CA3	0,915		0,915	
CA4	0,916		0,916	
PBB1	0,905	0,850	0,905	0,850
PBB2	0,947		0,948	
PBB3	0,940		0,941	
PBB4	0,894		0,892	
PC1	0,684	**0,312**	0,694	**0,511**
PC2	**-0,616**		**DELETED**	
PC3	0,613		0,758	
PC4	**-0,386**		**DELETED**	
PC5	**-0,417**		**DELETED**	
PC6	0,715		0,719	
PC7	**-0,424**		**DELETED**	
PC8	0,503		0,684	
PP1	0,842	0,791	0,842	0,791
PP2	0,916		0,917	
PP3	0,907		0,907	
PSC1	0,899	0,860	0,902	0,860
PSC2	0,944		0,943	
PSC3	0,939		0,936	

Source: Data processed by SmartPLS 3.0 (2022)

threshold value of the rules of thumb (≤0,40). Then, it shows that the AVE value increased after removing the outer loading indicators that did not meet the criteria. It can be seen that in the final re-estimation, all indicators of each variable already have a value of outer loadings greater than 0.40 and AVE > 0,50.

The following step to test the research measurement model was evaluating internal consistency reliability through Cronbach's alpha, composite reliability, and reliability coefficient as parameters. The three parameters came with various values from 0–1, under the assumption that a higher score determined a better reliability level. Hair et al. (2017) and Henseler et al. (2015) proposed a score of > 0.70 as the required rule of thumb. Table 4 presents the internal consistency for the reliability test.

Table 4 points out Cronbach's alpha and reliability coefficient (rho_A) of < 0.70. Hair et al. (2021) argued that internal consistency of 0.60–0.70 was acceptable, whereas, at a more advanced level, a score of 0.70–0.90 was considered satisfying. Additionally, because of the sensitivity of Cronbach's alpha to the number of items within a scale and its characters which tended to underestimate internal consistency reliability, technically, applying reliability composite size was considered more appropriate. Therefore, no reliability problems were found in the model that was formed. It can be concluded that all variables are reliable in measurement.

Further, discriminant validity can be evaluated by using the parameters of Fornell Larcker Criterion and Heterotrait-Montorait Ratio (HTMT Ratio). Table 5 exhibit the discriminant validity of both parameters respectively.

Table 5 displays all parameters are adequate for discriminant validity. It can be revealed that the correlation of the indicators to their own variables are higher than the correlation of these variables to other variables. Thus, latent constructs predict indicators in their block better than indicators in other blocks. Furthermore, the discriminant validity is declared good, due to the required HTMT Ratio value from Henseler et al. (2015), all ratio values are above 0.9. Through deductive reasoning, the model passed all reliability and validity tests (construct validity testing), which enabled an assessment of its predictive accuracy and relevance.

After all research items were stated as valid and reliable, a structural model analysis was carried out by testing the Collinearity statistics (VIF), R-square, f-square, Q-square, and hypotheses acquired from the path coefficient. The structural model was analyzed using an R-square (R^2) to measure the relationship between variables. The following is the inner VIF values for reflective constructs.

Table 6 showed the VIF reports (inner VIF values). According to Becker et al. (2023), the inner VIF reports the VIF for the inner/structural model. The evaluation of structural model need to assess these for the interpretation of path coefficients (i.e., collinearity among the constructs). The outer VIF report the VIF for the outer/measurement model. It need to be assessed for the interpretation of formative constructs only. It assesses the collinearity among the indicators of the constructs. For reflective indicators, these values should be high and thus are not meaningful to assess. Collinearity testing has been done through inner VIF values due to the reflective constructs using in the study.

Table 4. Internal consistency

	Cronbach's Alpha	rho_A	Composite Reliability
CONSUMER ANGER	0,940	0,943	0,957
PANIC BUYING BEHAVIOR	0,941	0,944	0,958
PERCEIVED CONTROL	0,681	**0,680**	0,806
PERCEIVED PRICE	0,870	0,919	0,919
PERCEIVED SCARCITY	0,918	0,920	0,948

Source: Data processed by SmartPLS 3.0 (2022)

Table 5. Discriminant validity

	Fornell Larcker criterion					Heterotrait-Monotrait Ratio				
	CA	PBB	PC	PP	PSC	CA	PBB	PC	PP	PSC
CA	**0,921**									
PBB	0,433	**0,922**				0,455				
PC	−0,590	−0,457	**0,715**			0,722	0,553			
PP	0,080	0,284	−0,224	**0,889**		0,087	0,304	0,284		
PSC	0,259	0,116	−0,345	−0,017	**0,927**	0,279	0,123	0,446	0,041	

Notes

CA = Consumer Anger PBB = Panic Buying Behavior PC = Perceived Control PP = Perceived Price PSC = Perceived Scarcity
Source: Data processed by SmartPLS 3.0 (2022).

Table 7 represented that consumer anger and perceived control could be defined by perceived scarcity subsequently by 6.4% and 11.6%. Panic buying behavior could be defined by perceived scarcity, perceived control, consumer anger, and perceived price by 28.1%. The rest were defined by other factors unexplained in this research.

The next structural model analysis was testing the f-square (the effect size). The f-square constituted the size of the R-square change when a certain exogenous variable was eliminated from the model to evaluate its substantive effect on the endogenous variable (Hair et al., 2017). Table 8 suggests the f-square of the research model.

As demonstrated in Table 8, the f-square of the perceived scarcity variable had a low impact on panic buying behaviors by 0.002. Nonetheless, the f-square of the consumer anger, perceived control, and perceived price variables had a strong impact on panic buying behaviors by 0.066, 0.058, and 0.054, respectively. Similarly, the f-square of the perceived scarcity had a strong impact on consumer anger by 0.072.

The following blindfolding process was conducted using the Q-square test parameters to work out if the model predicted the research data accurately. Table 9 showcases the Q-square test results.

Based on Table 9, each Q^2 (= 1 – SSE/SSO) showed off a score higher than 0 (>0). Building on the research criteria, therefore, the research variables had good predictive relevance.

Hypothesis or research significance tests used the path coefficient outputs under the significance criterion of t-statistics > t-table. The determination of a significance level was imperative to a hypothesis test. The research used a 0.05 significance level (α = 5%). Thus, the t-table used was 1.96. The following is the path coefficient score from the conceptual framework developed here. This was implicitly defining that several relationships between the variables tested were not supported or had insignificant impacts.

Table 6. Collinearity statistics (inner VIF values)

	CA	PBB	PC	PP	PSC
CONSUMER ANGER		1,548			
PANIC BUYING BEHAVIOR					
PERCEIVED CONTROL		1,730			
PERCEIVED PRICE		1,068			
PERCEIVED SCARCITY	1,0000	1,153	1,000		

Table 7. Adjusted R square (R_2)

	R Square Adjusted
CONSUMER ANGER	0,064
PANIC BUYING BEHAVIOR	0,281
PERCEIVED CONTROL	0,116

Source: Data processed by SmartPLS 3.0 (2022)

Table 8. F square

	CA	PBB	PC	PP	PSC
CA		0,066			
PBB					
PC		0,058			
PP		0,054			
PSC	0,072	0,002	0,135		

Source: Data processed by SmartPLS 3.0 (2022)

Table 9. Q square

	SSO	SSE	Q^2 (=1-SSE/SSO)
CONSUMER ANGER	1156,000	1091,497	0,056
PANIC BUYING BEHAVIOR	1156,000	880,628	0,238
PERCEIVED CONTROL	1156,000	1087,494	0,059
PERCEIVED PRICE	867,000	867,000	
PERCEIVED SCARCITY	867,000	867,000	

Source: Data processed by SmartPLS 3.0 (2022)

Referring to the data processed, the influence of perceived scarcity on perceived control was negative and significant. Conversely, perceived scarcity had a positive effect on consumer anger. Furthermore, perceived control had a negative effect on panic buying behavior. The influence of consumer anger and perceived price on panic buying behavior was positive and significant. Meanwhile, the impact of perceived scarcity on panic buying behavior was adverse and insignificant. It can be summarized that five of the six hypotheses proposed were accepted, whereas the rest was rejected. The result of the inner model testing (path coefficients) can be seen in Figure Figure 2 and Table 10 respectively.

The statistics result of all proposed hypotheses can also be seen in Table 10.

4.4. Discussion

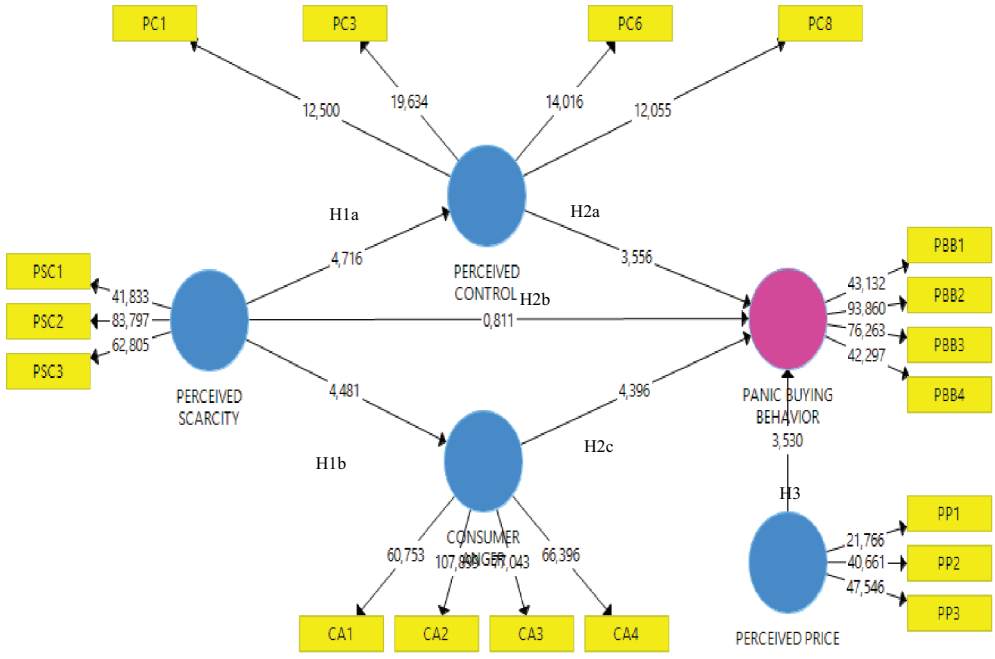
4.4.1. The influence of perceived scarcity on perceived control and consumer anger

The hypothesis test suggested a significant negative impact of perceived scarcity on perceived control ($\beta = -0.345$, t-value = 4.716, $\rho < 0.001$). That is, there was a negative relationship between perceived scarcity and perceived control. Some prior research (e.g., Arafat et al., 2020; Chua et al., 2021; Wang et al., 2020; Zheng et al., 2020) gave evidence in which we could identify the impact of perceived scarcity on perceived control. Palm oil scarcity perceived by the West Sumatra society affected their individual responses to control over the situation. The (high) perception of scarcity can lead to feelings of anxiety and a lack of control. The relationship between the perceived palm oil scarcity and individuals' perceived ability to control the situation might vary, depending on individual and situational factors. The result was aligned with Resource Scarcity Theory by Worchel et al. (1975), that when resources individuals needed grew scarce, their perceptions of the capability of controlling the situation would be declining.

Perceived control, also known as perceived behavioral control, is one of the concepts in the Theory of Planned Behavior proposed by Ajzen (1991, 2002), referred to individuals' belief about their ability to control their behavior in performing a certain action. It was the perception of the ease or difficulty of displaying behavior. This perception could be influenced by internal factors, such as skills, willingness, and information, as well as external factors, such as culture and politics. Individuals' strong control beliefs could facilitate behavior performance, indicating that the

Figure 2. Output of inner model.

Source: Data processed by SmartPLS 3.0 (2022).



individuals had a strong perception of their ability to control their behaviors. On the other hand, if they had a low perception of their ability to control behaviors, they might have weak control beliefs and should struggle to overcome factors that hindered behavior performance.

Uncertainty and fears due to perceived scarcity typically appeared when individuals witnessed evidence that the situation became uncontrollable and that they might not be able to fulfill their primary needs, such as buying food, particularly when all were attempting to hoard (Naeem, 2021). Ngunjiri (2020) reported that when individuals were perceiving that stores might be running out of goods during the pandemic, they would be motivated to control the situation by hoarding products. Yuen et al. (2020) proposed that consumers' perceived product inaccessibility due to health crises could produce perceived threats of losing freedom.

If palm oil scarcity negatively affected perceived control, it could mean that individuals felt less able to control their behaviors or the situation when faced with the phenomenon. The results were commensurate with respondent answers. Most respondents consumed palm-oil-containing food almost on a daily basis (57.44%). Even they consumed it during the survey period (87.89%). In addition, in spite of a variety of alternative food processing, more than 75.43% of respondents preferred oil-frying food processing to boiling, steaming, grilling, or stir-frying. It presented evidence that respondents showed a high dependence on palm oil in processing food. In so doing, they lost self-control during scarcity. The scarcity of palm oil products in any brands and quantity at the market generated individual anxiety.

Besides, this anxiety was also provoked by a multitude of information in the media showing off the Indonesian community's responses to palm oil supply scarcity. Big retailers were packed with women making a line to buy palm oil. Some retailers even obliged buyers to submit either identity cards or other cards to buy two liters of palm oil. Viral negative news showed the portrait of the consequence of palm oil scarcity conditions affecting several regions and inducing risks, moral and material losses, even death tolls. The results conformed with Yu et al. (2023), Cialdini (2008), and Gierl et al. (2008), that resource scarcity could lessen cognitive abilities and self-evaluation of individuals.

Table 10. Statistics result of hypotheses proposed

NO	HYPOTHESES	BETA	T-STAT	P-VALUES	RESULT
1.	H1a: Perceived Scarcity has a significant effect on Perceived Control	−0,345	4,716	0,000	Supported
2.	H1b: Perceived Scarcity has a significant effect on Consumer Anger	0,259	4,481	0,000	Supported
3.	H2a: Perceived Control has a significant effect on Panic Buying Behavior	−0,267	3,556	0,000	Supported
4.	H2b: Perceived Scarcity has a significant effect on Panic Buying Behavior	−0,043	0,811	0,418	Not supported
5.	H2c: Consumer Anger has a significant effect on Panic Buying Behavior	0,270	4,396	0,000	Supported
6.	H3: Perceived Price has a significant effect on Panic Buying Behavior	0,202	3,530	0,000	Supported

Source: Data processed by SmartPLS 3.0 (2022).

Furthermore, perceived scarcity had a significant and positive impact on consumer anger ($\beta = 0.259$, t-value = 4.481, $\rho < 0.001$). It demonstrated how palm oil scarcity triggered consumers' adverse emotions. The results were in good agreement with Omar et al. (2021) and Biraglia et al. (2021). Consumers anxiety and anger inflected their perception of behaving (Antonetti & Manika, 2021). Scarce palm oil availability in the market pushed consumer anger as they could not easily find palm oil products they would like to buy. Previous research has demonstrated that scarcity appeals may cause customers to display higher levels of consumer aggression in order to acquire the target product (Kristofferson et al., 2017), raising the prospect that such sentiments may have detrimental effects for brands. Furthermore, Li et al. (2021) discovered that when customers are afraid of a product scarcity, they prefer to buy more things to compensate for unpleasant feelings that provide them with a sense of security.

The high price of packaged palm oil (non-subsidized) and difficulties in accessing bulk palm oil (subsidized) set off many different views among the community related to the causing roots, which were allegedly panic buying, hoarding, distribution issues, cartel mafias, and politicization. A high dependency level of the community on affordable palm oil based on their financial capacity could spark their anger when finding the commodity scarce or unavailable at the market. The result was congruent with Cognitive Dissonance Theory by Reed & Forehand (2016)) related to consumer behaviors. The theory proposed that when consumers were perceiving inconsistency between their beliefs, attitudes, or values and the situation they were dealing with, psychological stress might arise. Frustration and difficulties in meeting the need for palm oil consumption could trigger consumer anger.

Additionally, consumers could not find palm oil in the quantity and brand they usually bought. Many parties assumed that the costs of goods sold (packaged palm oil) at the government-set price through Ministry of Trade Regulation Number 6/2022 concerning the Maximum Retail Price (MRP) of Packaged Palm Oil resulted in packaged palm oil under various brands and quantities no longer available in the market. It was attested to by the fact that the amendment of the government policy to Ministry of Trade Regulation Number 11/2022 concerning subsidy policies concerning bulk palm oil yielded subsidized palm oil no longer available in the market, and packaged palm oil sprang up. That was, the government's solution of changing the price policy led to another turbulence in the community.

In addition, predicated on the preliminary survey, the West Sumatra society showed confusion about the price-concerning policy set forth by the government. The field evidence suggested that palm oil was sold at diverse prices, which were not in accordance with government regulations. Since early 2022, the price of cooking oil has soared and its supply has been limited. The government then intervened by equalizing the standard price of each cooking oil by setting the Highest Retail Price (HET). This policy is contained in Permendag Number 6 of 2022. In this regulation, the price of bulk cooking oil is IDR 11,500 per liter, packaged cooking oil is IDR 13,500 per liter and premium packaged cooking oil is IDR 14,000 per liter. This rule has been in effect since February 1st. However, the Ombudsman of the Republic of Indonesia (ORI) still found cooking oil with high prices and not in accordance with government regulations in several regions. For example, the price of cooking oil in Aceh is still around IDR 18,000 per liter, North Sumatra IDR 19,000 per liter, West Sumatra IDR 18,000 per liter, East Kalimantan IDR 23,000 per liter and West Java IDR 22,000 per liter. That is, the government solution through price swing policies excited consumer anger.

4.4.2. The influence of perceived control, perceived scarcity, and consumer anger on panic buying behavior

Statistically, the results presented a significant and negative influence of perceived control on panic buying behaviors ($\beta = -0.267$, t-value = 3.556, $\rho < 0.001$) and a significant and positive influence of consumer anger on panic buying behaviors ($\beta = 0.270$, t-value = 4.396, $\rho < 0.001$). Perceived control could relate to individuals' beliefs in their ability to address scarcity, such as by finding alternative products or using products more efficiently. Perceived control could impact consumers' behaviors (Ajzen, 2002), including their behaviors to perform panic buying or adopting another scarcity coping strategy. A negative relationship between perceived control and the panic buying behavior of palm oil could suggest that individuals who felt having a greater sense of control over their actions or circumstances might be less inclined to engage in panic buying. In other words, a higher sense of perceived control might reduce the likelihood of panic buying behavior when it came to palm oil. However, it was important to consider that this relationship might vary based on individual differences and situational factors.

It differed from consumer anger, in which high consumer emotion levels would likely breed high worry and panic levels to buy palm oil, and vice versa. The results were also in conforming with Wang et al. (2020) researching in Wuhan, China, during the pandemic. They found that consumer purchase decision behaviors, particularly panic buying, were influenced by consumer emotions due to anxiety and not knowing the situation well.

Due to the scarcity of the goods, customers are more likely to experience anger from perceived other-responsibility, which refers to a strong feeling of unhappiness or hostility, coupled by a desire to strike the source of anger. Thus, furious customers are more likely to engage in retaliatory conduct than less angry ones (Bonifield & Cole, 2007). As a result, when consumers are unable to obtain a specific product, they become enraged and may switch to a competitor product. That is, if society were well informed of the scarcity condition, they would be able to undertake better self-control, alleviating panic buying likeliness (Li et al., 2021). Although scarcity excited individual anger, the community could self-control and needless to say, prevent panic by virtue of free-palm-oil food processing, a typical food processing from the Minang (West Sumatra) community.

Individual control over an event reduced their anxiety stimulating them to carry out panic buying to hoard supplies. Most of the research respondents proposed that they had heard, read, and accessed news on palm oil scarcity through the media. Accordingly, they could respond to the information with positive control even though they were in dire straits wherein they could not access palm oil as they expected.

The mean score of individual perception of controllable palm oil scarcity was high, whereas that of panic buying behaviors was low. Statistically, the hypothesis test showed that individual perceived control influenced them not to conduct panic buying. The descriptive mean scores of both variable indicators were not equivalent (negative), indicating that the higher the individual ability to self-control, the lower their responses to panic buying.

Furthermore, Roy and Chakraborty (2021) stated that visceral factors were primarily negative emotions, such as anger and fear that motivated people to take certain actions. For instance, the fear of contracting coronavirus might lead to an increase in the purchase of hand sanitizers and masks during the COVID-19 pandemic. However, in terms of the consumer anger variable indicators, >50% of respondents in this study did not showcase any anger or panic buying. It indicated that in spite of respondents' high reliance on processing food in correspondence with their taste, they did not show off anger considering a range of alternate food processing requiring no cooking oil. It was in keeping with the prior research (e.g., Arora & Singer, 2006; Patiro et al., 2022; Taylor, 2000) positing that emotions could boost and stimulate behaviors and had implications for every action made.

Besides, most respondents accessed the information about palm oil scarcity a month ago. It exhibited sufficient knowledge and information they had acquired, enabling them to do self- and mind-control when the situation turned up. There was indeed abundant information provided by media presenting public responses to palm oil price hikes. Women lined up in big retailers to buy palm oil; even some stores required them to submit identity cards to buy 2 L of palm oil. Such adverse news, which went viral, indicated panic buying behaviors in several areas, in which people got affected by potential risks, moral and material losses, and even death tolls. Notwithstanding, the disturbing phenomena did not break out in West Sumatra as the research object. Consumers in the province did not show any negative emotion in response to palm oil panic buying behavior. In conclusions, the higher the level of anger among consumers, the more likely they are to engage in panic buying behavior, and vice versa.

Empirical data also suggested insignificant influence of perceived scarcity on panic buying behaviors ($\beta = -0.043$, t-value = 0.811, $\rho > 0.001$). As such, palm oil scarcity did not provoke panic buying among consumers in West Sumatra. If the perceived scarcity of palm oil did not significantly affect panic buying behavior, it could mean that individuals' perception of palm oil scarcity did not strongly influence their decision to engage in panic buying. In other words, even if individuals perceived palm oil scarcity, it might not necessarily lead them to engage in panic buying behavior. And yet, the results were not in line with Sterman and Dogan (2015), who both remarked that perceived scarcity and worries predisposed panic buying. Similarly, they were not in reasonable agreement with Chua et al. (2021), who did not find any significant and positive influence of the perceived scarcity variable on panic buying behaviors.

The research hypothesis was rejected as palm oil scarcity in West Sumatra turned out not to have a significant impact on society's buying behaviors in general. The results demonstrated that the West Sumatra society did not perceive any significant impact of palm oil scarcity in Indonesia. It was because of much different alternate food processing without palm oil the society commonly implemented and individual characteristics exhibited by the respondents, most of whom were aged <30 years old. The respondents, dominated by students, did not perceive household burden as severely as those with dependents. In so doing, palm oil scarcity would not significantly affect

society's buying behaviors. Another cause was that 53.3% of respondents were unmarried, leaving them no dependents and responsibilities for meeting any household needs.

The individual's assumption that a product would not be available after the occurrence is referred to as perceived scarcity (Sheu & Kuo, 2020). Uncertainty and fear of scarcity typically occur when individuals perceive indications that the situation has grown unpredictable and they may be unable to satisfy their fundamental necessities, such as purchasing food, especially when everyone attempts to amass (Naeem, 2021). It indicates that these previous works were not aligned with this study. In connection with the preliminary survey results, the West Sumatra society was aware of palm oil supply constraints and high prices. However, scarcity prevailed over bulk palm oil products, whose price was subsidized by the government, while packaged palm oil was still available at high and various prices. That being so, perceived scarcity did not significantly impact the shopping patterns of West Sumatra society.

Furthermore, the society did not perform panic buying or hoard palm oil as supplies because, according to them, the high price did not necessarily encourage them to buy or stock palm oil more than they usually did. The economic condition of the West Sumatra society, overshadowed by the COVID-19 pandemic impacts, brought about high unemployment and poverty levels in the area. Additionally, the regional fiscal study data exhibited slightly higher economic inequality indicators in 2021 compared to that in the previous year. It indicated a declined opportunity equality level for society to get access to socioeconomic resources (Kemenkeu, 2021). It implied the society's low purchase power, and that being so, scarcity did not significantly inflect their shopping behaviors, although the products desired were sold at high prices.

The results were supported by Li and Dong (2022), arguing that perceived scarcity did not necessarily affect panic buying in supermarkets during the early phase of the COVID-19 pandemic significantly. The research, carried out in supermarkets in West Sumatera, figured out that food supply scarcity was not a worrisome issue for the West Sumatra society as palm oil scarcity did not hit the area as severely as that hit other areas. Society could still access palm oil sold at high prices. That is, it was not palm oil supply scarcity which concerned them, but other factors sparking panic buying behaviors. It implied that the perceived scarcity variable did not have a significant effect on West Sumatra society's palm oil buying behavior in general.

4.4.3. The influence of perceived price on panic buying behavior

The empirical test demonstrated a significant positive impact of perceived price on panic buying behaviors ($\beta = 0.202$, t-value = 3.530, $\rho < 0.001$). That is, consumers' perceived price of palm oil sold in the market was a factor triggering panic buying. Price hikes in a society highly inflected their shopping behaviors, leading to panic buying behaviors (Chen, 2022; Chen et al., 2022; Herbon & Kogan, 2022).

The results were on pace with Wang et al. (2020), that perceived price influenced consumer behaviors of goods hoarding or panic buying. Wang et al. (2020), conducting research during the COVID-19 pandemic, posited that the ever-spreading virus had fostered the Chinese society's shopping behaviors, and their propensity of food hoarding had also doubled, as well as the food reserve scale, which increased from 3.37/day to 7.73/day. Besides, one of the panic buying factors was consumer perception of offered prices (Loxton et al., 2020).

From the results, it is found that the West Sumatra society perceived currently irrational palm oil prices beyond their financial capability. The significant palm oil price upsurge proved the government's failure to give justice to all society layers. Some people could not financially afford high palm oil prices, leaving them with perceived injustice. Furthermore, the research also showed that the society disagreed with or even was uninformed of the policy concerning the Maximum Retail Price (MRP) determined by the government. That is, they perceived baffling price policies issued by the government through Ministry of Trade Regulation concerning the

Maximum Retail Price. Additionally, palm oil was still sold at a range of prices not on pace with regulations in many different areas.

The research hypothesis was supported because the palm oil price rise significantly influenced West Sumatra society's shopping behavior. Considering the research respondents' demographic characteristics dominated by low-middle outcome society earning IDR2,500,00.00 on average (58.8%), it was not surprising that the income level was also influential. It had to be noted that the pandemic had posed economic weakening, lower well-being levels, and declined household income, fostering individuals to set some priorities in fulfilling their daily needs. Clearly, low-income society would undoubtedly be affected by price hikes.

5. Conclusion and implications

In both national and international media, palm oil scarcity in Indonesia was considered a polemic which grabbed headlines. Many were questioning how the phenomenon could come about in Indonesia, a country reputed as the first-rank CPO producer. The Ministry of Agriculture of Indonesia reported an increase in the national production of palm commodities by 49.7 million tons in 2021. The percent increased by 2.9% from 48.3 million tons yielded in the previous year. Nevertheless, the reality was far from expected based on the data. Since the late December 2021, Indonesian society had been unsettled by price upsurge and trouble accessing the most favorable commodities amidst economic recovery attempts after the COVID-19 pandemic.

As exhibited by the results, of the six hypotheses proposed, one had no significant impact. Some findings answering the problems could be concluded as follows. The influence of the perceived scarcity variable on perceived control was stronger than that of the perceived scarcity variable on consumer anger. The influence of the consumer anger variable on panic buying behaviors was stronger than that of the perceived control and perceived price. Meanwhile, the hypothesis that perceived scarcity predisposed panic buying behaviors was unsupported.

Panic buying of Palm oil occurs in several big cities in Indonesia. Indonesia, which is the largest producer of crude palm oil globally, is currently experiencing a shortage of palm cooking oil. Palm oil plays a crucial role in maintaining the Indonesian economic stability (Adam et al., 2016; Priwiningsih & Abidin, 2022). However, to meet domestic needs alone, there are still difficulties with the relatively high price of cooking oil (Mahaputra & Saputra, 2022). The beginning of panic buying towards palm oil in Indonesia occurred when the packaged increased smoothly in 2021 until it significantly increased in October 2021 (Nafsah & Amanta, 2022), and then it was followed by scarcity in December 2021. since the beginning 2022, there was a price fluctuation that was allegedly caused by government involvement. When there was a shortage, packaged cooking oil cost as much as 27.000 IDR per liter, almost twice as much (Purbawa et al., 2023).

Academic implications referred to the research novelty. That was, this research was different from that by Chua et al. (2021), especially in probing certain factors, such as fears of COVID-19, uncertain information, perceived scarcity, and trust in the government related to pandemic mitigation attempts which could inflect panic buying behaviors. This research modified conceptual models from previous research to test more accurate determinants within the context of palm oil scarcity in Indonesia. Theoretically, the research offered novelty by broadening the conceptual model prior research applied and examining the impacts of perceived scarcity, perceived price, perceived control, and consumer anger on panic buying behaviors through coping behaviors as an underpinning theory.

Coping Behavior Theory referred to the strategy individuals adopted to overcome stress and face off daily challenges. Perceived scarcity could be a significant stress source for consumers when they were facing up to difficulties in accessing products which used to be vastly available. According to Coping Behavior Theory, this scarcity could fuel strong emotional reactions, e.g., anxiety, frustration, or uncertainty. Dijkstra and Homan (2016) and Terry (1991) remarked that

perceived control played a critical role in coping with stress. During scarcity, individuals might feel losing control over their ability to get the products they needed. It could escalate their stress level and set off recovery measures to regain control through panic buying behaviors. Coping behavior oftentimes acted as an effective strategy for facing off a worrisome situation or condition, requiring perceived control as the reflection of coping behaviors (Chen et al., 2017, 2020; Sneath et al., 2009; Yuen et al., 2020).

Furthermore, the results showed that perceived scarcity had no significant effect on panic buying behaviors, but perceived control and consumer emotions did. As stated by Sherman et al. (2021) and Yuen et al. (2020), in addition to perceived control, strong emotions could provoke impulsive reactions and panic buying behaviors as a coping strategy to reduce emotional insecurity and regain perceived control. Coping Behavior Theory could be used as a basic coping strategy by consumers to tackle stress and anxiety on account of scarcity, preventing panic buying behaviors (Arafat et al., 2020; Yuen et al., 2021, 2022). It suggested that consumer emotions, e.g., anxiety, uncertainty, or fears of losing could affect consumer behaviors in response to scarcity. By buying products in high numbers, consumers were expecting to feel more secure and possess higher control over an uncertain situation.

Moreover, palm oil scarcity in Indonesia brought social panic and unsettledness, given that palm oil was a strategic commodity important for food processing. Notwithstanding its ability to produce more flavors, palm oil, in excessive use, could cause risks of various diseases. Research on social awareness of a healthy lifestyle and its linking to responses to panic behaviors was rare. It would be worthwhile to conduct an in-depth study on how factors in the health belief model affect panic buying and to further explore the need for switching behavior using other alternative food processing methods.

This study has practical implications in the form of insights and perspectives for consumers, media, businesses, producers, policy makers and regulators in responding to palm oil scarcity. As has been done by consumers or the people of West Sumatra who actually already have a tradition of processing food without frying oil, through the uniqueness of Minangkabau's special foods such as various rendang, curry, kalio, and others. The findings that there is a significant negative relationship between perceived scarcity and perceived control, as well as between perceived control and panic buying behavior, suggest that West Sumatrans should not view the shortage of palm oil as a critical issue because their rich local culinary traditions provide cultural factors that can help them maintain self-control during times of scarcity. There are other alternatives to palm oil as a means of food preparation. West Sumatra was one of the provinces in Indonesia where people were fascinated by Minangese cuisine. Various West Sumatra culinary was not originated from Padang City, yet the public had identified it as Padang culinary. Besides its exquisite and breathtaking tourist destinations, Sumatra Barat was famed for its delicious cuisine. One of the West Sumatera food, *rendang*, was a globally famous and top-ranked dish by CNN International in 2017. This dishes were popular for their dominating coconut milk, meat, and spicy taste derived foremost from spices.

Rendang was one of the dishes made from beef and spices, the cooking process of which might use no palm oil. Besides *rendang*, there were other Minangese dishes processed without palm oil but still tasty in flavor, e.g., *asam padeh*, *gulai*, meat *kalio* (a half-cooked *rendang* with a considerable amount of coconut milk-based soup or a dish with thick soup regarded as the combination of *gulai* and *rendang*), and so forth. As such, although the West Sumatra society considered palm oil one of their primary needs, especially for cooking, they had many different alternate cooking methods where palm oil was of no use. They could still consume a range of delicious food steamed, boiled, grilled, and soup (*gulai*). However, the government should give more serious support through socialization, education, or certain events to boost consumer enthusiasm, making them willing to implement cooking processes with no use of cooking oil.

The roles of information providers, such as media, were also crucial in exposing information related to healthy culinary from traditional food rich in flavor for spices. Providers, that being so, were contribute in broadening the community's insights and knowledge, helping them to reduce palm oil consumption. Collaboration and cooperation between the government, industries, media, and the West Sumatra community would eventually become one of the alternative strategies to manage the scarcity situation to heighten perceived control and decrease community anxiety. It would prevent panic buying behaviors which could interfere with goods availability and the economy overall. Additionally, the results demonstrating the impact of perceived scarcity on consumer anger and the correlation between consumer anger and panic buying behaviors exhibited the need for media to provide valid information containing no provocative content, which could spark anxiety, anger, and panic in the community.

Responding to the effect of perceived price on panic buying behaviors, business actors could make anticipatory efforts related to market changes, maintain product quality, evaluate operational strategies, and find suitable alternative solutions to scarcity. The results indicated that the significant relationship between perceived price and panic buying behaviors contributed to the need for the evaluation of government policies concerning price fixation during scarcity which could inflect producers. Government interventions by granting subsidies and incentives should be accompanied by strict supervision to manifest target-efficient subsidy allocation. As this action would cost higher, it would be better if the government paid attention back to the market mechanism or transfer the subsidy to other mechanisms, such as free education or free health services for the low-income community. This subsidy transfer should be instigated with the government's real action to provide a valid database which contained all necessary data, such as data on recipients, forms of activities, allocated subsidy budget, and other). The subsidy schemes the government made thus could be more efficient.

Policymakers and regulators also needed to take protective actions for producer and consumer interests, such as making policies concerning price monitoring and controlling, emergency supply provision, importing and exporting regulations, domestic production improvement, and regulation and supervision increases. Government institutions (e.g., the Agency for Drug and Food Control, Ministry of Trade, and Ministry of Agriculture), research institutions, industry associations, and consumer organizations could be involved in making and implementing policies and regulations concerning palm oil industries in Indonesia. They could give inputs, research, or advocation to make more effective policies and regulations. All policies and regulations made should be concerned with the balance between producer needs, market stability, and community interests.

6. Limitations and suggestions for further research

The COVID-19 pandemic also resulted in promoted community awareness of healthy lifestyles. Scarcity and palm oil price increases in Indonesia, therefore, should become a momentum which led to the transition to a healthy lifestyle. This research did not scrutinize the effects of health belief factors (Health Belief Model) as determinants related to perceived palm oil scarcity. Chua et al. (2021) studied the Health Belief Model but did not make a correlation between the impacts of perceived control and consumer anger factors. This research also made no analysis of the community awareness of a healthy lifestyle and its relationship with panic buying responses. Grounded on the weaknesses, a comprehensive study with further development of this research model and the inclusion of other factors in Health Belief Model related to panic buying behaviors may offer interesting novelty.

The results pointing out that perceived scarcity had an adverse impact on perceived control through the investigation by comparing the effects of perceived control due to internal and external factors, as suggested by Ajzen (1991) through the Theory of Planned Behavior, or testing the perceived control dimension based on Integrated Consumer Behavior Model by Engel, Blackwell, & Miniard and Hoyer, MacInnis, & Pieters in Gupta and Gulati (2014) are also potential to research further. The perceived control variable, in this research, was analyzed using indicators

internally measuring individual self-control perspectives, resulting in the event in which most of the respondents declared themselves as having a self-control ability. As palm oil scarcity was actually a macroeconomic issue inflected by external factors, the results hence presented the fact that respondents came with low perceived control. There was an effect of other external factors, namely situational and environmental factors, on individual behavior control. Government policies concerning palm oil price regulations were certainly uncontrollable by the community. Frazier et al. (2011) research, focusing on the different correlations between three aspects of perceived control, which were past, present, and future, also contains an interesting topic potential for further research.

This research focused on the impact of community panic buying behaviors due to palm oil scarcity factors. Another variable, e.g., the macroeconomic variable regulated by monetary and fiscal policies (economic factors covering inflation, goods price, individual outcomes, and product availability), which acts as the outcome or dependent of this panic buying behavior, is also an interesting topic to study further. Further studies also may be related to the analysis of what government intervention can overcome the scarcity of primary commodities besides issuing policies, that increase public anxiety instead.

One of the government's objectives is to establish the highest retail price as a subsidy, allowing the middle-class and lower-income population to continue to be able to satisfy the demand for palm oil. This program, however, was misguided and led to the disappearance of palm oil from the market and its subsequent scarcity. This suggests that price control schemes below production prices are frequently unsuccessful and result in higher economic losses if they are not implemented and monitored carefully. The same findings are also reported in Soen et al. (2022), finds that the supply of cooking oil subsidies in the form of direct cash assistance (known as BLT in Indonesia) is more targeted than subsidies in the form of taxes, which are entirely borne by the government. Due to the fact that all societal segments can benefit from tax subsidies, they are viewed as being off-target. Although the BLT subsidy policy is perceived as being more effective, a study by Varina et al. (2022) finds that the effectiveness of this policy is low, due to several reasons, including the lack of clear and precise indicators (proxy mean test) in determining household criteria poor recipients of palm oil subsidies, the occurrence of information asymmetry and moral hazard in aid distribution, and poor coordination and supervision in putting policies into place. In order to stabilize the price of palm oil and other strategic goods in the future and avoid shortages and panic purchasing, a macro policy plan that is both effective and efficient is required. A more thorough investigation is required for this, taking into account factors of producer behavior in addition to consumer behavior and government policy.

On the grounds of time horizon, this research was cross-sectional through online questionnaire distribution or being undertaken three months after palm oil scarcity in Indonesia. Respondent perceptions could be slightly different if data collection were carried out offline or face-to-face during the peak of the scarcity. This research took the West Sumatra community as samples and respondents, considering the province was also affected by palm oil scarcity directly. Besides, the province also offered a range of culinary known well by both domestic and international tourists and alternative oil-free food processing. Future researchers are hence suggested to carry out a comparative study in other regions or a comparative study of regions before, during, and after palm oil scarcity.

This research was limited to individual analysis units. As palm oil consumers, 289 respondents in West Sumatra were analyzed for their individual perceptions. The impact of palm oil availability scarcity was not only perceived by individuals. Business actors, particularly in culinary sectors, who produced or conducted food processing using palm oil, were also affected. Future researchers therefore should use organization analysis units and/or a larger sample size.

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Appendix A. Variable Operationalization and Measurement

NO.	Constructs and Definitions	Indicators	References
1.	Perceived scarcity, referred to an individual's conception of limited product availability (,) (Gupta & Gentry, 2016)	PSC1. The products that I feel the want to buy will be very limited during the palm oil scarcity	Chua et al. (2021)
		PSC2. The brand availability for a product will be very limited during the palm oil scarcity	
		PSC3. The sizes of a product will be very limited during the palm oil scarcity	
2.	Perceived control, referred to the perception that thoughts, feelings, and general reactions to an event are under individual control (Frazier et al., 2011)	PC1. There isn't much I can do to help myself feel better about the event*	Frazier et al. (2011)
		PC2. How I deal with this event now is under my control	
		PC3. I don't have much control over my emotional reactions to the event*	
		PC4. When I am upset about the event, I can find a way to feel better	
		PC5. I have control over my day-to-day reactions to this event	
		PC6. There isn't much I can do to keep the event from affecting me*	
		PC7. I have control over how I think about the event	
		PC8. My reaction to the event is not under my control*	
3.	Consumer anger, referred to negative emotions caused by the assessment of an undesirable situation (Antonetti & Manika, 2021).	CA1. I feel mad when it is difficult to find palm oil to buy	Antonetti and Manika (2021)
		CA2. I feel angry when it is difficult to find palm oil to buy	
		CA3. I feel frustrated when it is difficult to find palm oil to buy	
		CA4. I feel irritated when it is difficult to find palm oil to buy	

(*Continued*)

(Continued)

NO.	Constructs and Definitions	Indicators	References
4.	Perceived price, referred to an individual's perception of the amount of money that must be spent to obtain a product (Zhong & Moon, 2020)	PP1. The price of the palm oil is reasonable	Zhong and Moon (2020)
		PP2. The price of the palm oil is fair	
		PP3. The price of the the palm oil is affordable	
5.	Panic buying behavior, referred to Tindakan pembelian produk tertentu dalam jumlah besar yang disebabkan oleh kecemasan terhadap kelangkaan persediaan produk di masa yang akan datang (Ardyan et al., 2021)	PBB1. I bought more palm oil than usual because of the fear of running out of stocks	Ardyan et al. (2021)
		PBB2. I buy palm oil more than usual because I feel anxious about running out of goods	
		PBB3. I buy more palm oil than usual because I am panicked out of goods	
		PBB4. I buy more palm oil than usual for me to store	

Note: * = reverse coded